

eftec

Economics for the
Environment
Consultancy

Applying economic tools in marine decisions: natural capital valuation and accounting



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*Coastal Futures 2016
Review and Future Trends*

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Outline

1. About eftec
2. Economic valuation
3. Value transfer: principles and practice
4. Accounting approaches
5. Natural capital investments
6. Conclusion

1. About eftec

- Leading consultancy specialising in environmental economics in the UK providing economic analysis for effective and sustainable environmental policy and management
- Our work regarding the marine environment includes:
 - Impact assessments for designating MPAs
 - Implementation of MSFD in UK and OSPAR region
 - Modelling fisheries policies and estimating the economic value of illegal fishing
 - Valuation of marine ecosystem services

2. Economic valuation

Why use environmental economics?

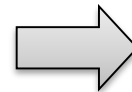
- To understand the value
 - Ultimately estimate ‘the demand for the environment’
 - Environment is something people have preferences for, and there are trade-offs to assess
- To demonstrate value
 - Economic appraisal (CBA, IA, etc.)
 - Environmental accounting
- To capture value
 - Economic instruments (e.g. subsidies, compensation)

2. Economic valuation of environment

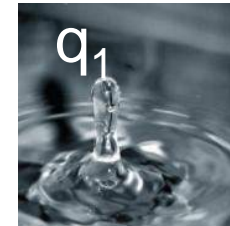
- Economic valuations reflect the relative importance or worth of natural capital to people in a particular context
- Not ‘putting a price on nature’, not a moral judgement
- Values of *change*
 - Needs a baseline and a measure of change
 - Values are context (e.g. location, time) specific
- Only as accurate as underlying science



from this...



to this...



How much does individual's wellbeing change?

2. Economic valuation of environment

Primary methods:

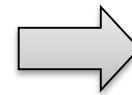
- Market prices
- Proxies through observed behaviour in markets
- Surveys of individual's preferences

Value transfer:

- Adjustment of existing evidence to a new context
- More cost-effective and quicker



from this...



to this...



How much does individual's wellbeing change?

3. Value transfer: principles

- Use of readily available economic valuation evidence to estimate the monetary value of environmental benefits or costs associated with a proposed policy or project
- A practical tool for appraisal (CBA) - quicker and lower cost than primary studies
- Varying levels of sophistication
 - Adjusted unit value, and value function transfer
 - Ways of adjusting secondary valuation evidence to the change and context where decision is being made

3. Value transfer: practice

Developing the evidence base for impact assessments for 18 recommended MPAs and dSPAs in Scotland (2015)


- Potential economic and social impacts of designation
- Used value transfer to determine the use and non-use values to anglers and divers based Kenter et al. (2013) - part of UK NEA, which looked at over 100 potential sites including 25 MPAs in Scotland
- 18 sites valued (20 yrs) at:
 - Existing recreational value of £270 m (PV; 20 yrs)
 - Additional protections have £0.7 - £1.8 bn recreational value, and estimated non-use values of £2.1 - £6.2 m per site



4. Organising values: accounting

Values need to be incorporated into decision-making processes - use accounting approaches

- National Accounts approach used follows the UN framework for experimental ecosystem accounts
- Corporate Natural Capital Accounting (CNCA), methodology developed by eftec for Natural Capital Committee
- Both involve:
 - Physical asset account
 - Physical flow account
 - Monetary flow account



		Year 2013		
		Renewables		Total
		Private	External	Value
		£'m	£'m	£'m
Assets				
1	Baseline value (2008)	14.1	12.3	26.4
2	Cumulative gains/(losses)	1.7	4.4	6.1
3	Additions/(disposals)	1.7	1.6	3.4
4	Revaluations and adjust.			-
	Gross asset value	17.5	18.4	35.8
Liabilities		Private	External	
5	Legal provisions			
6	Other maintenance provisions	(3.6)	(1.5)	(5.1)
	Total maintenance provisions	(3.6)	(1.5)	(5.1)
Total Net Natural Capital				30.7

4. UK marine ecosystem accounts

- eftec scoping study of a UK marine environmental account
- Ecosystem services flows determined using scientific modelling based on existing data in UK
- Physical flows that could be given monetary values using value transfer:
 - Fisheries: market price of fisheries applied to volume of fisheries
 - Climate regulation: price of CO₂ applied to volume of carbon sequestered by marine environment
 - Recreation: welfare value (£/visit based on meta-analysis study from UK NEA) applied to number of visits to marine and coastal environment
- No marine CNCA study yet exists
- Natural Capital Protocol (forthcoming) guiding business' use of economic valuation of the environment

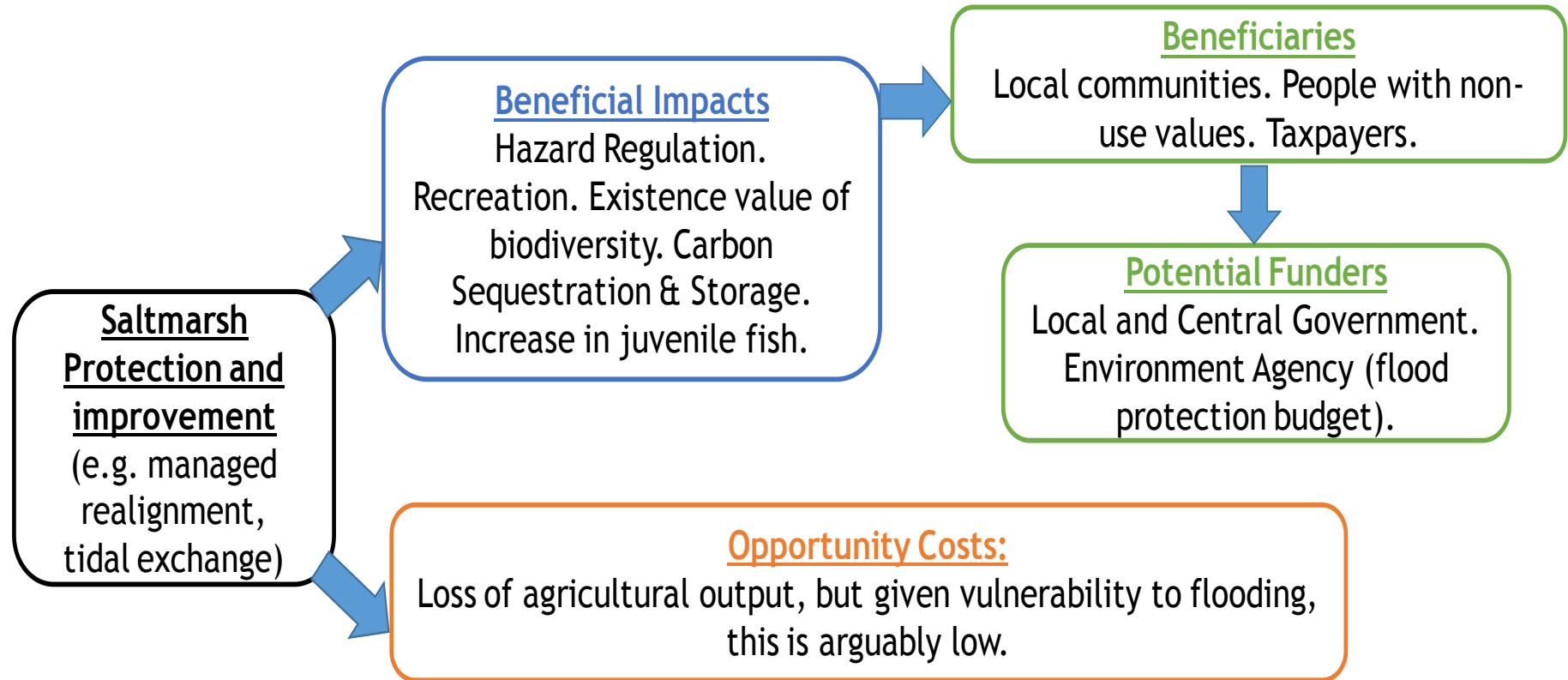
5. Natural capital investment cases

- Economic evidence on the costs and benefits of investing in natural capital for the Natural Capital Committee's 3rd State of Natural Capital Report
- eftec-led study described 10 investment 'cases' to protect and improve natural capital
- Investments summarised using 'value chains' including:
 - Saltmarsh
 - Demersal fisheries
 - Shellfish



5. Natural capital investment cases

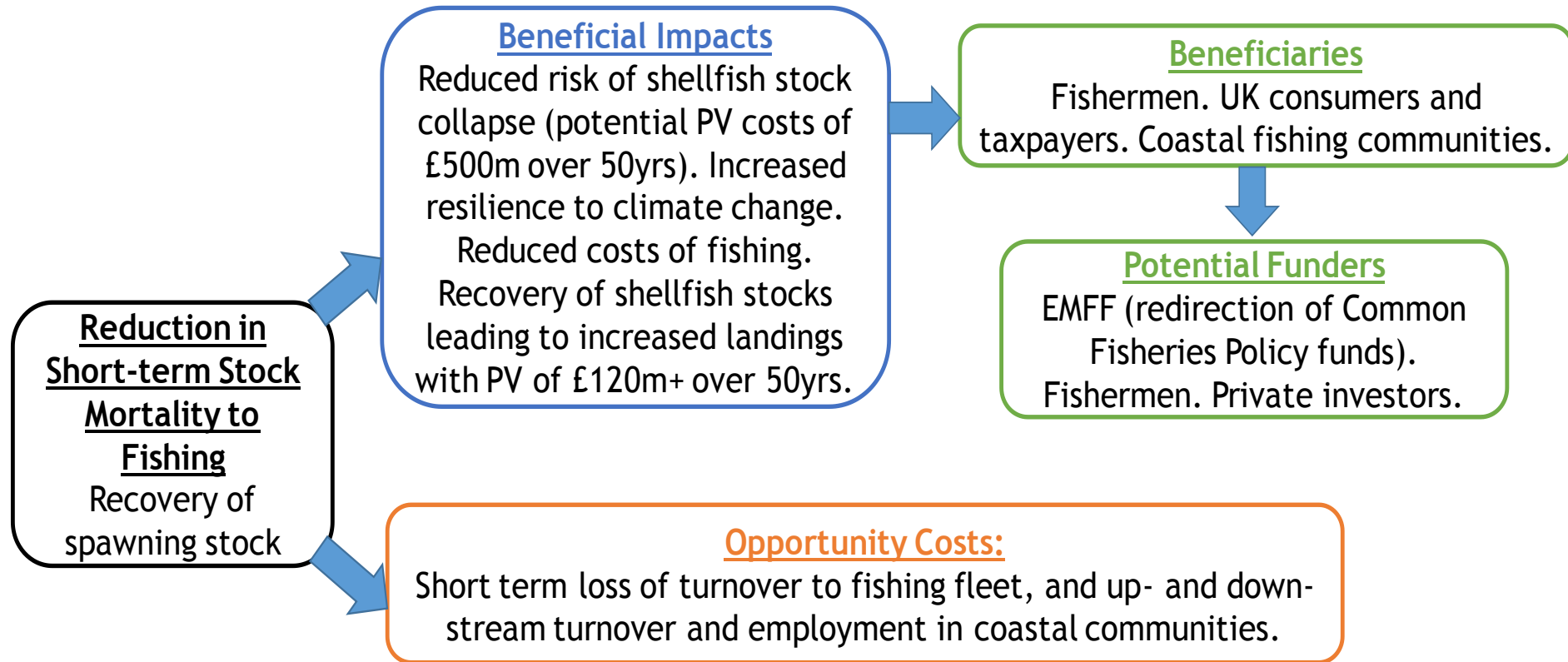
Saltmarsh - value chain



Technical underpinning of the case: Coastal land that is uneconomic to defend. Realignment techniques.

5. Natural capital investment cases

Shellfish - value chain



Technical underpinning of the case: Science on current stock status and levels of MSY.

6. Conclusion

- Economic valuations reflect the relative importance or worth of natural capital to people in a particular context
- Need more marine evidence, but what we have can be adjusted to different contexts to inform different decisions using value transfer
- Identifying the value of ecosystem services leads us to:
 - Organise valuation evidence using accounting approaches
 - Consider the capacity to sustain services = natural capital
 - Invest in natural capital to protect and improve benefits to people over time

Thank you!

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